UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,540	02/28/2002	Kazuhiko Mogi	ASA-1072	7723

24956 7590 06/22/2004

MATTINGLY, STANGER & MALUR, P.C.
1800 DIAGONAL ROAD
SUITE 370
ALEXANDRIA, VA 22314

EXAMINER	
LY, ANH	

ART UNIT	PAPER NUMBER
2172	6

DATE MAILED: 06/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/084,540	MOGI ET AL.	
	Examiner	Art Unit	
	Anh Ly	2172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 February 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *#2 2/28/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is response to Applicants' Communications filed on 02/28/2002.

2. Claims 1-42 are pending in this application.

Information Disclosure Statement

3. The information disclosure statement filed 02/28/2002 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. No copy of other documents and Foreign Patent Documents and their translations (full of document), thus, these documents have not been considered.

Specification

4. On the Page 1, line 2, of the section of cross-reference, "U.S. application Serial No. " and "filed" are missing information of serial number and filing date.

Claim Objections

5. Claim 12 is objected to because of the following informalities:

Lines 3 and 4 of claim 12, "logical/physical position con version means has in-storage-apparatus" should be replaced with "logical/physical position conversion means has in-storage-apparatus." Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-19, 21-39, and 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6035,306 issued to Lowenthal et al. (hereinafter Lowenthal) in view of Pub. No. 2001/0056438 of Atsuki Ito (hereinafter Ito).

With respect to claim 1, Lowenthal teaches acquiring information on a database to be managed by said database management system through said computer (getting information of database to be managing by a DBMS via the analysis tool in order to determine the space or free space or storage availability of a storage device: col. 2, lines 12-67 and col. 3, lines 1-8; also see col. 6, lines 14-45);

determining by said data position management server allocation of said database data in said computer system on the basis of acquisition information including said database information (determining the location of data or space so that the exact source of storage device or providing adequate storage space of the storage device to be determined: col. 2, lines 64-67 and col. 6, lines 14-19); and

changing said data allocation stored in said storage apparatus by said storage control means according to said instruction (database sharing the resources of the application in the server may changing the location or address of data since the space of the storage device varying during the processing: col. 5, lines 1-10 and col. 6, lines 38-45).

Lowenthal teaches an analysis tool is provided for user to select a time window during which the database performance is accessed, it is mapping or converting the

data location from logical to physical structure of data stored in the storage device (col. 2, lines 64-67) and to get the adequate storage space of the storage device (col. 6, lines 14-19 and col. 13, lines 40-45 and col. 14, lines 30-38). Lowenthal also teaches data placements (col. 3, lines 1-8). Lowenthal does not explicitly teach data position management server and instructing said storage control means of data migration to realize said data allocation determined by said data position management server.

However, Ito teaches location of data storing in the storage device via mirroring controller and migrating data for the database storage subsystem (Page 1, section 0022 and Page 2, section 0024).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Lowenthal with the teachings of Ito so as to have mirroring controller to mirroring or locating data stored on storage device of the database storage subsystem. The motivation being to have a analysis tool via user interface for determining, locating and mirroring or migrating data stored in the storage device in order for optimizing data placement and improving system performance of databases of the system.

With respect to claims 2-6, Lowenthal discloses a data relocation method as discussed in claim 1. Lowenthal also teaches the server computer as a host computer including operating system software and it is a parallel architecture system to access on a relational data base management and including a database storage subsystem (col. see fig. 4, col. 6, lines 1-67, and col. 3, lines 65-67).

Lowenthal teaches an analysis tool is provided for user to select a time window during which the database performance is accessed, it is mapping or converting the data location from logical to physical structure of data stored in the storage device (col. 2, lines 64-67) and to get the adequate storage space of the storage device (col. 6, lines 14-19 and col. 13, lines 40-45 and col. 14, lines 30-38). Lowenthal does not explicitly teach data position management server.

However, Ito teaches location of data storing in the storage device via mirroring controller and migrating data for the database storage subsystem (Page 1, section 0022 and Page 2, section 0024).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Lowenthal with the teachings of Ito so as to have mirroring controller to mirroring or locating data stored on storage device of the database storage subsystem. The motivation being to have a analysis tool via user interface for determining, locating and mirroring or migrating data stored in the storage device in order for optimizing data placement and improving system performance of databases of the system.

With respect to claim 7, Lowenthal teaches wherein, prior to instruction of the determined data allocation from said data position management server to said storage control means, said determined data allocation is presented to an administrator to check the administrator about whether or not to conduct a change in the data allocation (DBA is a database administrator who is checking or managing database on the system, disks: col. 3, lines 5-8, col. 6, lines 38-45).

With respect to claims 8-9, Lowenthal teaches wherein said information on database contains at least one of information relating to a data structure including table, index, and log defined by a schema of said database management system and information relating to record positions of data of said database sorted according to the data structure defined by said schema in said storage apparatus and wherein, in said computer system having a plurality of said storage apparatuses therein, said data position management servers, at the time of determining said data allocation, determines said data allocation to be allocated to said another storage apparatus different from said storage apparatus having said data stored already therein (col. 4, lines 7-40 and see fig. 1).

With respect to claim 10, Lowenthal teaches wherein said storage apparatus has at least one physical storage means for storing data therein, and said data position management server, at the time of determining said data allocation, determines a data allocation which specify a storage position in said physical storage means of said storage apparatus (physical structure of storage: col. 2, lines 45-67 and data placements: col. 3, lines 1-8).

With respect to claims 11-12, Lowenthal teaches a data relocation method as discussed in claim 1. Lowenthal also teaches mapping information from logical to physical of database being monitoring by administrator: col. 2, lines 58-67 and see abstract).

Lowenthal teaches an analysis tool is provided for user to select a time window during which the database performance is accessed, it is mapping or converting the

data location from logical to physical structure of data stored in the storage device (col. 2, lines 64-67) and to get the adequate storage space of the storage device (col. 6, lines 14-19 and col. 13, lines 40-45 and col. 14, lines 30-38). Lowenthal does not explicitly teach converting a logical position used by said computer to access said storage apparatus to a storage position of said physical storage means, and said data position management server acquires information including in-storage-apparatus logical/physical mapping information relating to mapping of logical/physical position from the storage apparatus having said logical/physical position conversion means and storage-apparatus data physical storage position change means of the data migration in said storage apparatus, and said storage apparatus changes the allocation of said data stored in said storage apparatus according to said instruction.

However, Ito teaches location of data storing in the storage device via mirroring controller and migrating data for the database storage subsystem (Page 1, section 0022 and Page 2, section 0024) and data converter (Page 1, section 0021).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Lowenthal with the teachings of Ito so as to have mirroring controller to mirroring or locating data stored on storage device of the database storage subsystem. The motivation being to have a analysis tool via user interface for determining, locating and mirroring or migrating data stored in the storage device in order for optimizing data placement and improving system performance of databases of the system.

With respect to claim 13, Lowenthal teaches detects a set of said database data to be simultaneously accessed with a high possibility on the basis of said acquisition information, and arranges said set in said physical storage means different therefrom (analysis tool can be detected performance problems and check database to detect potential hotspots before they cause performance problem: col. 3, lines 1-8).

With respect to claims 14-19, Lowenthal teaches a data relocation method as discussed in claim 1. Lowenthal also teaches table data, index data, physical structure, log data and updating database (col. 4, lines 7-40), parallelized database (col. 4, lines 25-35), and schema data storing each file (col. 8, lines 25-38) and a high possibility of accessing (col. 13, lines 35-67).

Lowenthal teaches an analysis tool is provided for user to select a time window during which the database performance is accessed, it is mapping or converting the data location from logical to physical structure of data stored in the storage device (col. 2, lines 64-67) and to get the adequate storage space of the storage device (col. 6, lines 14-19 and col. 13, lines 40-45 and col. 14, lines 30-38). Lowenthal does not explicitly teach converting a logical position used by said computer to access said storage apparatus to a storage position of said physical storage means, and said data position management server acquires information including in-storage-apparatus logical/physical mapping information relating to mapping of logical/physical position from the storage apparatus having said logical/physical position conversion means and storage-apparatus data physical storage position change means of the data migration in said

storage apparatus, and said storage apparatus changes the allocation of said data stored in said storage apparatus according to said instruction.

However, Ito teaches location of data storing in the storage device via mirroring controller and migrating data for the database storage subsystem (Page 1, section 0022 and Page 2, section 0024).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Lowenthal with the teachings of Ito so as to have mirroring controller to mirroring or locating data stored on storage device of the database storage subsystem. The motivation being to have a analysis tool via user interface for determining, locating and mirroring or migrating data stored in the storage device in order for optimizing data placement and improving system performance of databases of the system.

Claim 21 is essentially the same as claim 1 except that it is directed to a computer system rather than a method, and is rejected for the same reason as applied to the claim 1 hereinabove.

Claim 22 is essentially the same as claim 2 except that it is directed to a computer system rather than a method, and is rejected for the same reason as applied to the claim 2 hereinabove.

With respect to claims 23-26, Lowenthal discloses a data relocation method as discussed in claim 1. Lowenthal also teaches the server computer as a host computer including operating system software and it is a parallel architecture system to access on a relational data base management and including a database storage subsystem (col.

see fig. 4, col. 6, lines 1-67, and col. 3, lines 65-67) and make up a set of stripes of simplified database (col. 4, lines 54-67 and col. 5, lines 27-45).

Lowenthal teaches an analysis tool is provided for user to select a time window during which the database performance is accessed, it is mapping or converting the data location from logical to physical structure of data stored in the storage device (col. 2, lines 64-67) and to get the adequate storage space of the storage device (col. 6, lines 14-19 and col. 13, lines 40-45 and col. 14, lines 30-38). Lowenthal does not explicitly teach data position management server.

However, Ito teaches location of data storing in the storage device via mirroring controller and migrating data for the database storage subsystem (Page 1, section 0022 and Page 2, section 0024).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Lowenthal with the teachings of Ito so as to have mirroring controller to mirroring or locating data stored on storage device of the database storage subsystem. The motivation being to have a analysis tool via user interface for determining, locating and mirroring or migrating data stored in the storage device in order for optimizing data placement and improving system performance of databases of the system.

Claim 27 is essentially the same as claim 7 except that it is directed to a computer system rather than a method, and is rejected for the same reason as applied to the claim 7 hereinabove.

Claim 28 is essentially the same as claim 8 except that it is directed to a computer system rather than a method, and is rejected for the same reason as applied to the claim 8 hereinabove.

Claim 29 is essentially the same as claim 9 except that it is directed to a computer system rather than a method, and is rejected for the same reason as applied to the claim 9 hereinabove.

Claim 30 is essentially the same as claim 10 except that it is directed to a computer system rather than a method, and is rejected for the same reason as applied to the claim 10 hereinabove.

Claim 31 is essentially the same as claim 11 except that it is directed to a computer system rather than a method, and is rejected for the same reason as applied to the claim 11 hereinabove.

Claim 32 is essentially the same as claim 12 except that it is directed to a computer system rather than a method, and is rejected for the same reason as applied to the claim 12 hereinabove.

Claim 33 is essentially the same as claim 13 except that it is directed to a computer system rather than a method, and is rejected for the same reason as applied to the claim 13 hereinabove.

Claim 34 is essentially the same as claim 14 except that it is directed to a computer system rather than a method, and is rejected for the same reason as applied to the claim 14 hereinabove.

Claim 35 is essentially the same as claim 15 except that it is directed to a computer system rather than a method, and is rejected for the same reason as applied to the claim 15 hereinabove.

Claim 36 is essentially the same as claim 16 except that it is directed to a computer system rather than a method, and is rejected for the same reason as applied to the claim 16 hereinabove.

Claim 37 is essentially the same as claim 17 except that it is directed to a computer system rather than a method, and is rejected for the same reason as applied to the claim 17 hereinabove.

Claim 38 is essentially the same as claim 18 except that it is directed to a computer system rather than a method, and is rejected for the same reason as applied to the claim 18 hereinabove.

Claim 39 is essentially the same as claim 19 except that it is directed to a computer system rather than a method, and is rejected for the same reason as applied to the claim 19 hereinabove.

Claim 41 is essentially the same as claim 1 except that it is directed to a data position management server rather than a method, and is rejected for the same reason as applied to the claim 1 hereinabove.

With respect to claim 42, Lowenthal teaches wherein said storage control means is implemented by a program on said at least one computer (relational database management system is a program or software storing on the computer for accessing the database storage subsystem: col. 4, lines 7-40).

9. Claims 20 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6035,306 issued to Lowenthal et al. (hereinafter Lowenthal) in view of Pub. No. 2001/0056438 of Atsuki Ito (hereinafter Ito) and further in view of US Patent No. 6,021,408 issued to Ledain et al. (hereinafter Ledain).

With respect to claim 20, Lowenthal in view of Ito discloses a data relocation method as discussed in claim 1.

Lowenthal teaches an analysis tool is provided for user to select a time window during which the database performance is accessed, it is mapping or converting the data location from logical to physical structure of data stored in the storage device (col. 2, lines 64-67) and to get the adequate storage space of the storage device (col. 6, lines 14-19 and col. 13, lines 40-45 and col. 14, lines 30-38). Lowenthal also teaches data placements (col. 3, lines 1-8). Lowenthal does not teach data position management server. Ito teaches location of data storing in the storage device via mirroring controller and migrating data for the database storage subsystem (Page 1, section 0022 and Page 2, section 0024). Lowenthal teaches disk caching (col. 1, lines 54-65). In combination, Lowenthal and Ito do not teach wherein said database information includes information relating to a cache memory amount and cache operation when said database management system caches said database data in a memory on said computer, said data position management server acquires storage apparatus cache memory information relating to a cache memory from said storage apparatus and allocates the data in said storage apparatus on the basis of information about a cache

memory effect obtained from said database information and said storage apparatus cache memory information.

However, Ledain teaches RAM cache memory (col. 2, lines 65-67 and col. 3, lines 1-40).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Lowenthal in view of Ito with the teachings of Ledain so as to have caching memory for storing data and mirroring controller to mirroring or locating data stored on storage device of the database storage subsystem. The motivation being to have a analysis tool via user interface for determining, locating and mirroring or migrating data stored in the storage device in order for optimizing data placement and improving system performance of databases of the system.

Claim 40 is essentially the same as claim 20 except that it is directed to a computer system rather than a method, and is rejected for the same reason as applied to the claim 20 hereinabove.

With respect to claim 40, Lowenthal in view of Ito discloses a computer system as discussed in claim 21.

Lowenthal teaches an analysis tool is provided for user to select a time window during which the database performance is accessed, it is mapping or converting the data location from logical to physical structure of data stored in the storage device (col. 2, lines 64-67) and to get the adequate storage space of the storage device (col. 6, lines

14-19 and col. 13, lines 40-45 and col. 14, lines 30-38). Lowenthal also teaches data placements (col. 3, lines 1-8). Lowenthal does not teach data position management server. Ito teaches location of data storing in the storage device via mirroring controller and migrating data for the database storage subsystem (Page 1, section 0022 and Page 2, section 0024). Lowenthal teaches disk caching (col. 1, lines 54-65). In combination, Lowenthal and Ito do not teach wherein said database information includes information relating to a cache memory amount and cache operation when said database management system caches said database data in a memory on said computer, said data position management server acquires storage apparatus cache memory information relating to a cache memory from said storage apparatus and allocates the data in said storage apparatus on the basis of information about a cache memory effect obtained from said database information and said storage apparatus cache memory information.

However, Ledain teaches RAM cache memory (col. 2, lines 65-67 and col. 3, lines 1-40).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Lowenthal in view of Ito with the teachings of Ledain so as to have caching memory for storing data and mirroring controller to mirroring or locating data stored on storage device of the database storage subsystem. The motivation being to have a analysis tool via user interface for determining, locating and mirroring or migrating data stored in the storage

device in order for optimizing data placement and improving system performance of databases of the system.

Contact Information

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh Ly whose telephone number is 703 306-4527 or via E-Mail: ANH.LY@USPTO.GOV. The examiner can normally be reached on 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene, can be reached on 703 305-9790. The fax phone number for the organization where this application or proceeding is assigned is 703 746-7239.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to: Central Fax Center (703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Fourth Floor (receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-6606 or 703 305-3900.

JEAN M. CORRIELUS
PRIMARY EXAMINER

ANH LY
JUN. 9th, 2004